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Title: Microbiological and Sensorial Response of *Listeria monocytogenes*-Inoculated Leafy Salad Vegetables Following Irradiation and Refrigerated Storage Under Modified Atmosphere

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microbiological and sensorial response of *Listeria monocytogenes*-inoculated leafy salad vegetables following irradiation and refrigerated storage under modified atmosphere.

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WORK PLAN FOR FIRST YEAR

Note: All experiments will be performed in triplicate, according to BAM methods. Expected completion date is in parenthesis.

- 1) Determine the irradiation D₁₀ value for *L. monocytogenes* on whole and cut endive (*Chicorium endiva*) using doses of 0.0-2.0 kGy. (January 2002)
- 2) Begin research on the influence of CO₂-enriched packaging atmospheres on D₁₀ values for *L. monocytogenes* on endive. Initial experiments to be completed by March 2002; this work is expected to continue in the second year.
- 3) Determine the non-fatal injury level and recovery rate of *L. monocytogenes* during refrigerated storage of irradiated endive, using key doses determined from (1). (February 2002)
- 4) Begin research on the response of the background nonpathogenic microflora of endive to irradiation and refrigerated storage, using key doses determined from (1). Initial experiments to be completed by March 2002; this work is expected to continue in the second year.
- 5) Conduct research on the dose-specific sensorial properties of irradiated (0-4 kGy) endive, particularly those properties related to marketability. (Mar 2002) Analysis will be with instrumental measurements; studies with human sensory panels are expected to be a part of the later work.

WORK ALREADY DONE

Preliminary studies of the D value for *L. monocytogenes* on endive have already been performed (Nov 8, 2001). Storage population studies have also been initiated and the protocols for these studies are being refined.

MILESTONES

These studies will be completed so as to be presented at an international scientific meeting to be held in the United States in July/August of 2002. Potential venues include the meetings of the Institute of Food Technologists or International Association of Food Protection.

Progress report will be submitted to the IAEA (by January, 2002)

These results will be submitted for publication in peer-reviewed scientific journal(s).

FUTURE WORK

- 1) Continue and expand MAP experimentation
- 2) Continue and expand studies of background nonpathogenic microflora, particularly as it interacts with inoculated pathogens
- 3) Determine isolate/strain specificity of D₁₀ for *L. monocytogenes* on endive.
- 4) Vegetable type effects: other leafy green vegetables, other cut vegetables, mixed vegetables
- 5) Other pathogens, e.g. *Shigella*, *E. coli*, *Salmonella*